

## ABSTRACT OF THE DISCLOSURE

A self-supported III-V nitride semiconductor substrate having a substantially uniform carrier concentration distribution in a surface layer existing from a top surface to a depth of at least 10  $\mu\text{m}$  is produced by

- 5 growing a III-V nitride semiconductor crystal while forming a plurality of projections on a crystal growth interface at the initial or intermediate stage of crystal growth; conducting the crystal growth until recesses between the projections are buried, so that the crystal growth interface becomes flat; and continuing the crystal growth to a thickness of 10  $\mu\text{m}$  or more while
- 10 keeping the crystal growth interface flat.